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Level 1, Building B, 91 Parry Street,
Newcastle NSW 2302

8 December 2022

Clare Savage
Chair
Australian Energy Regulator

Dear Ms Savage,

RE: Australian Energy Regulator Flexible Export Limits Issues Paper

SwitchDin welcomes the opportunity to provide feedback to the Australian Energy Regulator (AER) Issues Paper on Flexible Export Limits.

SwitchDin is an Australian energy software company that bridges the gap between energy companies, equipment manufacturers and energy end users to integrate and manage energy resources on the grid. SwitchDin's technology enables our clients to build and operate vendor-agnostic virtual power plants (VPPs) and microgrids, and to optimise performance across fleets of diverse assets. Founded in Newcastle NSW in 2014, SwitchDin operates in all states of Australia, including in leading-edge distributed energy projects like Simply Energy's national VPP, flexible export programs in South Australia (SA) and Victoria, Project Symphony in Western Australia (WA) and the Solar Connect VPP in the Northern Territory (NT), among others. SwitchDin works with distribution network service providers (DNSPs), electricity retailers, inverter original equipment manufacturers (OEMs) and aggregators to enable and utilise flexible export capability.

We strongly support the direction of the work of the AER to develop a consumer protection framework for customers that will in future be subject to flexible export limits, as well as those who are subject to static export limits.

There are significant deficiencies in the regulatory framework for compliance and enforcement of consumer energy resources (CER) technical standards which must be addressed to enable successful implementation of interoperability policy and flexible export limits. We have proposed an approach that resolves the uncertainties regarding roles and responsibilities for compliance and enforcement, and would align roles and responsibilities for interoperability policy with compliance and enforcement responsibilities for CER technical standards.

Regulators have an important role to play in preventing technology being used to lock consumers into a single range of products behind the meter. There must be a minimum interoperability standard at the lowest level (the device level) which provides interoperability with the utility server without impeding device-to-device interoperability that customers will need for a home energy management system (HEMS) and other functions. This would not stop the use of CSIP gateways or a CSIP cloud platform, but it would protect consumers from monopoly behaviour by OEMs.

Smart meters could play a crucial role in enabling orchestration of assets behind the meter. The Australian Energy Market Commission (AEMC) review of the regulatory framework for metering services should recognise customers' right to free local access to the near real-time data from their smart meter that they will need to respond to flexible export limits, demand-based tariffs and other reforms to enable a two-way electricity distribution system. The privacy of customer data should be guaranteed. Only

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customers should have access to local data from their smart meter or from devices behind the meter, unless they consent to providing the data to an authorised agent or service provider.

The pace of CER technology development necessitates a regulator capable of responding in a timeframe of weeks or months. This could be a role for the AER. Alternatively, it could be addressed by the creation of a National Technical Regulator.

These issues are elaborated upon in our submission. Thank you for the opportunity to respond to these important issues. I remain available for further discussions and inputs.

Best regards,

[REDACTED]

Andrew Mears, PhD
Chief Executive Officer

Key Recommendations

1. *There are significant deficiencies in the regulatory framework for compliance and enforcement of CER technical standards which must be addressed*

Successful implementation of flexible export limits will require a functional framework for compliance and enforcement of CER technical standards. The AEMC review of CER technical standards will be key to resolving uncertainties regarding roles and responsibilities for compliance and enforcement, including clarification of the enforcement powers available to DNSPs.

2. *The compliance and enforcement framework for CER technical standards must address the three key stages of the CER life cycle*

The regulatory framework for compliance and enforcement of CER technical standards must function for each of the three key stages of the CER regulatory life cycle, which are:

- Compliance of inverters and other relevant devices with product standards,
- Compliance of CER systems with installation and commissioning requirements, and
- Compliance of CER with export limits and other requirements over its operating life.

Roles and responsibilities differ at each stage and the regulatory framework must outline the regulatory obligations for participants in each stage.

3. *Regulation of standards and protocols at the device-level is required to prevent technology being used to lock customers into being limited to a single brand name technology*

Regulation is needed to prevent technology being used to lock consumers into a single range of products. The Energy Security Board (ESB) Directions Paper on interoperability policy outlines three models (native to the inverter, via a gateway device or via a cloud platform) and proposes that “at least one part of the technology model needs a compliant CSIP-Aus Client”. However, if OEMs have the option of providing only a cloud CSIP-Aus client, then that is all they will do so as to capture this part of the data stack. This would be the opposite of open interoperability.

Even if a compliant CSIP cloud platform or CSIP gateway is available, there must be a minimum interoperability standard at the lowest level (the device level) which provides interoperability with the utility server without impeding device-to-device interoperability that customers will need for a HEMS and other functions. This would protect consumers from monopolistic behaviour by OEMs.

4. *Customers should be given free local access to near real-time data from their smart meter*


Smart meters can potentially play a crucial role in enabling orchestration of assets behind the meter in conformance with dynamic export limits. Policy makers should define the rights of customers and their authorised agents to access the local, near real-time meter data that they need to respond to flexible export limits, demand-based tariffs and other reforms to enable a two-way electricity distribution system.

5. *Customers should be given control of their data and privacy must be guaranteed*

DNSPs should have access to data at the connection point, but not for devices behind the meter. Only customers should have access to data from their devices and smart meter, unless they consent to providing it to an authorised agent or service provider.

6. *There is a need for an ongoing technical regulation*

The pace of CER technology development necessitates a regulator capable of responding in a timeframe of weeks or months. Standards Australia processes cannot address issues quickly enough. An annual review by the AEMC would not be quick enough.



The ongoing technical regulatory role could potentially be made the responsibility of the AER. Alternatively, it could be addressed by the creation of a National Technical Regulator.

Responses to questions raised in the consultation paper

AER's Analysis

1. Do stakeholders agree with the primary use case for the implementation of flexible export limits?

We agree that an important use case for flexible export limits should be “the efficient and increased utilisation of the shared hosting capacity on the distribution network to enable consumers to obtain the benefits of exporting their energy resources such as solar PV to the grid”. There are other important use cases. For example, the technology for flexible export limits can also be utilised for remote disconnection and reconnection (also known as ‘emergency backstop’) to assist in conditions of low system load.

Capacity Allocation Principles

2. Do stakeholders agree with the DEIP Working Group principles for capacity allocation?

Yes. We support the principles as outlined in the Issues Paper, that:

1. DNSPs are responsible for setting flexible export limits, with the calculation methodology used to determine the limits being transparent and subject to stakeholder consultation
2. Allocation should seek to maximise the use of network export hosting capacity while balancing customer expectations regarding transparency, cost and fairness
3. Capacity allocation can initially be based on net exports and measured at the customer’s point of connection to the network
4. Capacity should be allocated to small customers irrespective of the size or type of customer technology (e.g., solar or batteries) at the customer premises
5. In the near term, flexible export limits should be offered on an opt-in basis with capacity reserved only to make good on legacy static limit connection agreements, with efficient incentives provided for customers to transition to flexible export limits over time

The principles outlined above appear to assume that the DNSP will already understand what capacity remains for each feeder and that fair allocation is the main issue to be addressed. If this is the underlying assumption, it would be helpful for the AER to outline how it expects DNSPs to calculate the unused capacity, which is to be allocated.

There will also be a need to clearly outline how this framework would take account of the capacity already allocated to legacy CER systems (i.e. will they be ‘grandfathered’?) and whether a customer’s capacity allocation would be changed if they replace an old CER system. For example, DNSPs might wish to move customers from a static export limit to flexible export arrangements when they replace an existing CER system.

3. Should these principles for capacity allocation be binding for DNSPs?

The AER should apply the principles to DNSPs. Some will be more easily measured and quantified than others. Some will involve a degree of judgment, e.g. “balancing customer expectations”.

4. *Should the application of capacity allocation principles by DNSPs be auditable to assure consumers of fairness?*

In order to keep additional administrative overheads to a minimum, the Distributed Energy Resources (DER) Register which is maintained by the Australian Energy Market Operator (AEMO) could be used as the database for an audit trail. This would require the addition of several new fields to the database to record for each new connection approval:

- Is the export limit static or flexible?
- What is the maximum allowable export allowed?

DNSPs already provide data on new CER connections to AEMO for its DER Register, so the additional administrative impost would not be significant. For this approach to be effective, it would also be necessary to ensure that organisations responsible for dispute resolution (e.g. jurisdictional Ombudsman offices) have access to the data that would be recorded in the DER Register.

5. *Should principles for static export limits be developed for use by DNSPs going forward?*

Yes. Principles for static export limits and their application by DNSPs would be a very helpful contribution to this area of policy and regulation.

6. *Do stakeholders have a view as to whether existing AER guidance material is sufficient to communicate expectations regarding capacity allocation principles for flexible and/or static export limits?*

There is a need for additional guidance material for consumers regarding their rights and responsibilities with respect to exporting to the grid. This could be published by the AER, DNSPs, Energy Consumers Australia, consumer organisations or other advocates.

Capacity Allocation Methodology

7. *Is the approach outlined above in allowing flexibility for DNSPs to develop their capacity allocation mechanisms appropriate?*

Yes. It would be preferable for DNSPs to use the same principles in the allocation of capacity. However, DNSPs are at different stages regarding rooftop solar penetration on their network and the remaining solar hosting capacity. It makes sense to allow some DNSPs to commence allocation of flexible export capacity in advance of others. The amount of capacity allocated to new customers could vary from one DNSP to the next, depending on the amount of CER already connected to the network or to a feeder within the network.

8. *Do stakeholders agree that DNSPs should include their capacity allocation methodology in their CER integration plan?*

Yes.

9. *Should DNSPs be required to publish their capacity allocation methodologies, clearly outlining the trade-offs considered in setting their approach?*

Yes. This would help to improve consumer confidence.

10. *Should the AER have a role in approving DNSP capacity allocation methodologies? If so, what form should this mechanism take?*

Yes. The AER should consider DNSP capacity allocation methodologies alongside proposals for export charges, and network expenditure. In other words, as part of the DNSP's regulatory determination.

Consumer Participation

11. Do stakeholders agree with the expectation that over the near to medium term, consumers should continue to have the option of static export limits?

Yes. Dynamic export limits should not be mandatory. They should be available to consumers on either an opt-in or opt-out basis.

12. Should consumers be expected to opt-in or opt-out of flexible export limits (where available)?

SwitchDin is agnostic in relation to opt-in versus opt-out. We would take the advice of consumer representatives and other experts on which approach would best support the acceptance and adoption of flexible export limits.

13. Is it necessary for this expectation to be captured in the Model Standing Offer?

It might not be necessary. However, it could be helpful. We would be keen to better understand the arguments for and against inclusion in the Model Standing Offer (MSO) before making a firm recommendation.

Governance of traders and CER

14. Do stakeholders require further guidance with regards to the interactions of retailers and aggregators and flexible export limits outside of what is being explored through the existing workstream?

Yes. There are issues relating to enforcement of technical standards and capabilities enabled by interoperability that are being addressed in the AEMC review of governance of CER technical standards as well as the ESB directions paper on interoperability policy. There is a gap in the enforcement framework for technical standards. We have outlined an approach in Tables 1 to 3 (below) to align roles and responsibilities for interoperability policy with compliance and enforcement responsibilities for CER technical standards. The proposed framework makes it clear to companies what information they are required to provide to the DNSP (and what the DNSP is required to provide to the AER), but it does not specify how companies should go about satisfying their obligations to verify compliance. The policy objective should be to ensure that the AER and DNSPs are satisfied that CER systems connecting to the network are compliant with the NER and other requirements that may be set through the connection agreement and the MSO.

Table 1: The current approach to compliance and enforcement of products with CER device-level technical standards

Action	By whom	Comments
Product compliance with AS 4777.2:2020 and other device-level technical standards in connection agreements		
Device-level technical requirements set in NER, MSOs and connection agreements	AEMC, AER and DNSPs	AS 4777.2:2020 appears in NER, with regional settings set in DNSPs' connection agreements
Testing protocols for device-level requirements specified in standards	Standards Australia	Testing protocols are a crucial but often overlooked component of the governance framework
Test devices against testing protocols and certify	Accredited test labs	Practicality of tests and availability of facilities is an important consideration
Listing of certified devices	Clean Energy Council	Clean Energy Regulator is considering changes to the administration arrangements for the SRES
Verification that grid connection applications use listed products	DNSPs	All DNSPs use the CEC Approved Products List to verify product compliance

Table 2: A proposed approach to align roles and responsibilities for interoperability policy with the proposed approach for compliance and enforcement of CER technical standards in the CER installation and connection stages

Action	By whom	Comments
Stage 1 - Framework for installation compliance with AS 4777.2:2020 and other technical standards in connection agreements		
Clarify the responsible party for determining CER compliance with connection agreements	AEMC	The AEMC is clear that the DNSP is the responsible party for determining whether CER complies with technical standards via connection agreements
Clarify and, if necessary, strengthen the enforcement powers of DNSPs regarding connection agreements	AEMC	This work could be undertaken as part of the AEMC review of governance of CER technical standards
Establish post-installation process requiring connection applicants to verify compliance with connection agreement	DNSPs	SAPN is leading this work, which will require reporting by connection applicants (i.e. the CER retailer)
Establish efficient reporting arrangements	CER retailer	Likely to be based on remote, post-installation verification using interoperability capability, with support from OEMs or technology providers.
Establish rectification procedures	CER retailer	Likely to be undertaken by the CER retailer or the CER installer subcontracted by the CER retailer
Enforce post-installation process requiring connection applicants to verify compliance	DNSPs	SAPN is proposing to refuse approval to connect to applicants with a track record of non compliance.
Review legality of the proposed approach	AEMC	Assess any legal risks associated with this proposed approach e.g., could refusal to grant connection approval be challenged as 'restraint of trade'?
Regulate DNSPs' implementation of the proposed approach and, if necessary, approve expenditure for it	AER	To be considered in the next round of regulatory determinations
Stage 2 - Framework for installation compliance with interoperability policy		
Establish utility server for interoperability capability	DNSPs	SAPN is the most advanced regarding establishment of the utility server
Include interoperability capability in connection agreements	DNSPs	Utilise the same governance framework for AS 4777.2:2020 and interoperability
Approve MSO and connection agreements	AER	To be considered in the next round of regulatory determinations

Table 3: A proposed approach for flexible export limits in the CER operation stage

Action	By whom	Comments
		Framework for compliance with flexible export limits in the CER operation stage
Clarify the responsible party for determining CER compliance during the operational phase	AEMC	This work could be undertaken as part of the AEMC review of governance of CER technical standards
Clarify and, if necessary, strengthen the enforcement powers of DNSPs regarding flexible export limits	AEMC	This work could be undertaken as part of the AEMC review of governance of CER technical standards
Include flexible export limits in connection agreements	DNSPs	To be considered in updates to MSOs.
Approve MSO and connection agreements	AER	To be considered in the next round of regulatory determinations
Establish process to verify compliance with flexible export limits	DNSPs	AEMC decisions on roles and responsibilities must guide the compliance framework
Establish efficient reporting arrangements	Trader or site controller	Trader or VPP operator could be required to report on response of its fleet. Individual sites could be required to report where there is no trader involved.
Establish rectification procedures	Trader or site controller	Address issues of non compliance during the operational phase as they arise
Regulate DNSPs' implementation of the proposed approach and, if necessary, approve expenditure for it	AER	To be considered in the next round of regulatory determinations

Connection Agreement

15. Should DNSPs be required to set out expectations of flexible export limit operation within the connection agreement where there is no trader, or third party involved in the operation?

Yes. In situations where a DNSP sends an export limit instruction (or a remote disconnect / reconnect instruction) to a trader, it should be sufficient for the trader to provide verification of compliance by its fleet of assets. However, where there is no fleet asset manager it will be necessary to verify compliance at the site level. It will be necessary to specify the expectations within the connection agreement.

The connection agreement is currently an agreement between the customer and the DNSP. The expectations of the flexible export limit operation should therefore be spelled out to the consumer. Relying on the connection agreement for enforcement has limitations. DNSPs might be reluctant to disconnect power supply for some breaches of conditions in the connection agreement. SwitchDin has recommended to the AEMC how its review of governance of CER technical standards could address this gap in the enforcement framework. See Tables 1, 2 and 3 (above) for a summary of the recommended approach.

The DNSP's control and access to data should be limited to the connection point. DNSPs should not be permitted to directly control asserts behind the meter.

16. Do stakeholders agree with the rights and obligations outlined above?

The outline of the rights and obligations would be strengthened by the inclusion of an explanation of the actions that can occur in the event of non-compliance. However, the description of roles and responsibilities and clarification of DNSPs' enforcement powers should await the recommendations of the AEMC review of governance of CER technical standards.

Governance Arrangements for Flexible Export Limits

17. Do stakeholders have concerns about the approach to governance outlined above, particularly embedding elements of the rectification process in the connection agreement?

Yes. We have concerns regarding the recommendation that where a consumer enters an arrangement with a trader to control their energy resources, the responsibility for complying with the flexible export limit should be the responsibility of the trader. This recommendation requires clarification to avoid the risk of confusing the situation. It would be appropriate for the trader to be responsible for compliance with flexible export limits during the operational stage of a CER system. It would not be appropriate for the trader to be responsible for compliance with technical standards during the installation and commissioning stages. That should be the responsibility of the CER retailer who sold the CER system to the customer and who arranged for grid connection on the customer's behalf.

The compliance and enforcement framework needs to consider three distinct stages in the life cycle of a CER system, namely:

1. Compliance of inverters and other devices with product standards. This is currently enforced by DNSPs through the connection agreement, drawing upon the certification and product listing processes of the Clean Energy Council (CEC). This part of the process is working (by and large) and while there is room for improvement, it does not need to be 'fixed'.
2. Compliance of systems with installation requirements set out in the NER and connection agreements. This is not currently enforced by DNSPs and is the subject of a review by the AEMC. Where non compliance of installation is detected, rectification should be the responsibility of the CER retailer who sold the CER system to the customer and who arranged grid connection on the customer's behalf. Where the CER retailer has subcontracted a CER installer, the CER retailer would instruct the CER installer to rectify their non compliant work.

3. Compliance of systems during their operating life. Ultimately, it will be the customer's choice as to whether to maintain an ongoing internet connection. Customers might choose to discontinue their internet service, for example, and the trader would not be in a position to decide otherwise. This highlights the need for a fall-back option (e.g. a default, static export limit) when there is a break in communication. Customers and traders should be free to enter into arrangements regarding maintenance of communications, however it would not be necessary or desirable to make traders responsible for maintenance of internet communication in all circumstances.

These three stages and the proposed roles and responsibilities for each stage are outlined in Tables 1, 2 and 3, above.

18. Is it appropriate for a technology provider / OEM to be held responsible for devices that do not conform to the export limit set by the DNSP (i.e. where there is no active control)?

This question is phrased too broadly and is unhelpful. The compliance of systems with product standards, with installation standards and during their operating life needs to be considered separately, with a compliance and enforcement framework for each. Rolling the issues together into a single question risks confusing the situation even further.

Product compliance

The OEM should be responsible for ensuring that its devices comply with all relevant product standards.

An independent test lab should be responsible for testing devices in accordance with a Standards Australia testing protocol and certifying the device accordingly.

The DNSP should be responsible for ensuring that devices connecting to its network meet all relevant product standards. This is currently implemented through the connection agreement and with reference to the CEC Approved Products List.

Compliance at installation and commissioning stages

The DNSP should be responsible for ensuring that CER systems connecting to its system comply with relevant technical standards.

Data to verify compliance should be provided to the DNSP by the CER retailer who sold the system to the customer and arranged grid connection on behalf of the customer.

The OEM or their technology provider should be capable of providing the CER retailer with the data they need to verify compliance as required by the DNSP.

Where evidence of installation non compliance comes to the attention of the DNSP, it should be the responsibility of the DNSP to notify either the CER retailer who applied for grid connection approval on their customer's behalf.

The CER retailer should be responsible for rectifying installation where the DNSPs detects evidence of non compliance.

In situations where the CER retailer has subcontracted a CER installer, the installer should be responsible for ensuring that their work complies with relevant installation standards and the terms and conditions of the connection agreement. This includes any rectification that might be necessary.

The DNSP should be responsible for reporting data on compliance of installations to the AER.

In those jurisdictions where there is a regulatory body (e.g. an electrical safety regulator) that has already taken responsibility for compliance and enforcement of CER technical standards, the DNSP should be relieved of the responsibility (to avoid duplication of effort).

It should be the responsibility of the AEMC to review the regulatory framework to clarify and, if necessary, strengthen the enforcement powers of DNSPs so that they can take enforcement action where non compliant installations are not rectified.

If there is a change in the compliance and enforcement regime at the jurisdictional level, it should be the responsibility of the AER to review whether the new regime is sufficiently robust to warrant relieving the DNSP of its enforcement obligations.

Compliance during the operating stage

It should be the responsibility of the consumer to maintain a stable internet connection (where necessary) through the operating life of the system.

Where the customer has entered into an arrangement with a trader, they might choose to include terms and conditions regarding the trader's responsibilities during the operating life of the system.

There should be fall-back arrangements (e.g. a default static export limit) that apply to systems that become non compliant during their operating phase. (e.g. if a customer chooses to discontinue their internet subscription).

19. What is the appropriate governance arrangement for managing flexible export limits?

The DNSP should be responsible for verifying that systems connecting to its network are able to respond to limits and other instructions, as required.

During the installation / commissioning stage, the CER retailer (and where relevant the CER installer subcontracted to the CER retailer) should be responsible for ensuring that the installed CER responds as required to signals from the DNSP.

DNSPs should be responsible for issuing flexible export limits. The instructions would preferably be issued to the VPP operator or aggregator (hereafter referred to as the 'trader').

The trader should be responsible for ensuring that the CER fleet under its management responds according to the signals from the DNSP.

Where there is no trader, the customer should be responsible for ensuring their site maintains a stable internet connection and responds appropriately to signals from the DNSP.

Where there is no trader and the site no longer responds appropriately to signals from the DNSP there should be a default 'fall back' option to a low static export limit, for example.

20. Is it necessary to develop a separate framework to manage governance where a trader or technology provider is involved in passing-through the flexible export limit (i.e., where there is active control)?

Where there is a trader or technology provider involved in passing through the flexible export limit, and subject to arrangements with the customer, the trader could be given responsibility for ensuring that the site continues to respond appropriately to signals from the DNSP. There would also be the option of regulating the fleet-level response to signals, rather than focusing compliance on site-level responses. However where there is no trader involved, compliance with flexible export limits must be enforced at the site level.

DNSPs have reported difficulties regarding enforcement of connection agreements directly with customers, due to reluctance to disconnect power supply as a response to non compliance with technical standards. In a similar vein, it would be unrealistic for DNSPs to disconnect supply when a customer's internet connection fails. There should be a default, 'fall back' option to a low static export limit, for example, if a customer's CER fails to respond to signals from the DNSP due to loss of internet connectivity.

21. Do stakeholders agree with our view that consumers should not face significant penalties for non-conformance of their energy resources for flexible export limits?

Yes. It would be unreasonable to impose significant penalties on customers for non-conformance of the CER for flexible export limits when the non-conformance could be caused by loss of a stable internet connection, for example. It would be far more practical and reasonable for CER systems to default to a low static export limit if a customer's CER fails to respond to signals from the DNSP due to loss of internet connectivity, for example.

22. Do stakeholders believe there needs to be a standardised approach to enforcement for consumer energy resources under the control of a trader? For example:

- ***If notified by the DNSP of an issue with device conformance (where no trader is involved), is it appropriate for the responsibility of rectification to rest with the consumer?***
- ***Where a trader is involved, should responsibility for rectification rest with the trader?***

Where there is an issue of device conformance during the operational stage (e.g. due to loss of internet connectivity) and where there is no trader involved, the responsibility for rectification should rest with the consumer. However, there should be a default, 'fall back' option to a low static export limit, for example, if a customer's CER fails to respond to signals from the DNSP due to loss of internet connectivity. This will provide an incentive for the customer to rectify the problem and will ensure system security is not at risk due to a perverse incentive for a customer to disable their internet connection.

Where a trader is involved, the responsibility for rectification should be subject to the agreement between the trader and the customer. If a customer wants to be responsible for maintaining a stable internet connection, for example, they should be allowed to do so. Mandating maintenance of the internet connection by the trader could add unnecessary costs. However, where the customer is willing to pay for that service there should be no barrier to them doing so.

23. What should be the responsibilities of traders in ensuring consumer energy resources do not exceed any export limit set by the DNSP?

The trader should be responsible for ensuring that the fleet of CER systems under its management responds in accordance with the instructions received from the DNSP. Exceedance by individual CER systems should not be penalised, provided the fleet response is as required.

Notification Period for a Dynamic Limit

24. Does the issue of a framework for providing forecast information on expected dynamic limits need to be considered in the short term?

A detailed framework for providing forecast information on expected dynamic limits is not required at this stage. Industry more urgently requires clarification of foundational elements of the regulatory framework, like roles and responsibilities and the enforcement powers available to DNSPs.

25. Do stakeholders consider this will be sufficiently addressed through the Scheduled Lite workstream?

It is unclear at this stage which of the lessons learned in the Scheduled Lite project will be adopted more broadly.

26. Do stakeholders agree with the areas identified above as requiring immediate attention?

The areas requiring immediate action are:

- Governance of CER technical standards, including roles and responsibilities for compliance and enforcement of AS 4777.2:2020 and requirements for interoperability,
- Development of a regulatory framework for CER systems in the installation and connection phase and the operational phase,
- Clarification of the power available to DNSPs for enforcement of requirements set out in the NER, and connection agreements.

These foundations of the regulatory framework require clarification, decisions (and possibly rule changes) before the more detailed aspects of interoperability policy and regulations are developed.

27. Do stakeholders consider there are additional matters requiring immediate attention not covered here? If so, what are they, and what specific factors should we be considering?

Yes. There are three additional important issues that ought to be considered:

- How regulators can prevent OEMs from using technology to lock their customers into a single brand name product range,
- The importance of access to data from smart meters in enabling orchestration of assets behind the meter, and
- The need for an ongoing regulatory role to provide guidance on regulation of technology in a timely manner

Addressing the risk of technology lock-in

Regulators should consider what requirements should be placed on the means of enabling flexible export limits and how to prevent technology being used to lock consumers into a single range of products. The ESB Directions Paper on interoperability policy outlines the three models (native to the inverter, via a gateway device or via a cloud platform) and proposes that to comply with its proposed 'flexible exports ready' mandate "at least one part of the technology model needs a compliant CSIP-Aus Client". However, if OEMs have the option of providing only a cloud CSIP-Aus client, then that is all they will do so as to capture this part of the data stack. This would be the opposite of open interoperability. Even if a compliant CSIP cloud platform or CSIP gateway is available, every inverter should be required to have a minimum communications protocol requirement - either SunSpec Modbus or IEEE 2030.5. What is important is that there is a minimum interoperability standard at the lowest level (the device level) which provides interoperability with the utility server without impeding device-to-device interoperability that customers will need for a HEMS and other functions. This would not stop the use of CSIP gateways or a CSIP cloud platform, but it would protect consumers.

Access to data from smart meters

There ought to be important interlinkages between the AEMC review of the regulatory framework for metering services and the other CER workstreams. Currently, some consumers are paying for multiple meters because the metering framework in the NEM is no longer fit-for-purpose. It would be unacceptable to expect consumers to pay for their smart meters if they are prevented from accessing the local, near real-time data they will need to optimise generation and consumption for flexible export limits, demand-based tariffs and other applications to enable a two-way electricity distribution system.

The need for a national technical regulatory role

There are day-to-day and week-to-week roles for a technical regulator (e.g. interpretation of technical standards) that are not fulfilled by Standards Australia and would not be satisfied by an annual AEMC review process. The Office of the Technical Regulator (OTR) is fulfilling this role in South Australia, but a national (or NEM-wide) approach is needed. This gap could be addressed either by broadening the remit of the AER or by the establishment of a National Technical Regulator.

Monitoring Export Limit Performance and Information Provision

28. Are there any additional metrics that should be considered that have not been incorporated into the broader export services review?

Yes. The description of interlinkages with other workstreams has omitted the AEMC review of metering services. Access to smart meter data will be a crucial enabler of CER integration and utilisation of interoperability capability. Customers, or their authorised agents, should have a right to freely access near real-time data from the smart meter. This is needed to enable coordination of assets behind the meter to optimise generation and consumption in response to flexible export limits and demand-based tariffs. The customer pays for the smart meter, so they should have the right to access its data.

The export services review should measure progress toward development and implementation of a smart meter data access regime enabling customers, or their authorised agents, to access near real-time data from the smart meter. It should also measure progress toward improving network visibility by enabling DNSPs to access power quality data from smart meters.

29. Should the AER publish data on the performance of individual DNSPs in terms of their flexible export service for customers?

Yes.

Device Capability to Respond to Flexible Export Limits

30. Regarding the governance of a potential CSIP-Aus requirement, do stakeholders consider there should be a mandate for devices to be CSIP-Aus compliant for new connections in the NEM?

No, not exactly.

There should be a requirement for a minimum interoperability standard at the lowest level (the device level) which provides interoperability with the DNSP's utility server without impeding device-to-device interoperability that customers will need for a HEMS and other functions. However, the device-level protocol should not be restricted to CSIP-Aus. Every inverter should be required to have a minimum communications protocol requirement - e.g. IEEE 2030.5, the Open Charge Point Protocol (OCPP) for electric vehicle supply equipment (EVSE) or SunSpec Modbus.

There are limitations with CSIP-Aus which would bring into question any decision to mandate it to the exclusion of other interoperability protocols. Those limitations include:

- There are no proper test and certification capabilities for CSIP-Aus,
- The effectiveness and efficiency of CSIP-Aus at scale is unproven as there are no at-scale aggregations using either CSIP or CSIP-Aus,
- Utilising CSIP-Aus at the cloud may require DNSPs, aggregators, and traders to utilise the OEM clouds over which they do not control end to end cyber-security,
- The at-scale cyber-security and sovereign data risks are unquantified for CER in general and reliance on OEM cloud platforms exacerbates these uncertainties, and
- The reliance of CSIP and CSIP-Aus on specific "utility handbooks" which guide Technology Providers in the compliance requirements of specific DNSPs would mean that if even CSIP-Aus were adopted by all DNSPs, 'rail gauge' issues would still arise.

For example, in California Rule 21 there are multiple options available at the device level being DNP3, SunSpec Modbus and IEEE 2030.5 and at least one of these must be available on the device even if there is a CSIP cloud service. This would not stop the use of CSIP gateways or a CSIP cloud platform, but it would protect consumers from being 'locked in' to a single range of brand-name products.

31. Do stakeholders have a view on how this mandate could be most effectively implemented?

Yes. We support the SA Power Networks proposal, which would:

- Distinguish between 'flexible exports ready' and 'flexible exports capable',
- Clearly define the terms 'flexible exports ready' and 'flexible exports capable',
- Mandate use of 'flexible exports capable' inverters nationally, and
- Allow DNSPs to determine the timing for the introduction of 'flexible exports ready' requirements in their own network.

Under this model, a 'flexible exports capable' mandate would require all inverters to be capable of supporting an open interoperability communication protocol, but the site controller, client, export monitoring device and internet connection do not need to be present. A 'flexible export ready' mandate would be implemented when the DNSP is ready to support it and would require:

- 'Flexible export capable' inverters,
- A CSIP-Aus software client and site control,
- An export monitoring device,
- An internet connection, and
- Registration with the DNSP's utility server, which would use the CSIP-Aus communication protocol.

This staged approach would result in significant cost savings to customers whose DNSP is not yet ready to support a 'flexible export ready' mandate.

Interval Length

32. Do stakeholders agree that DNSPs are best placed to determine the interval length of flexible export limit operation? If not, what guidance would stakeholders like to see on this issue?

Yes. With respect to compliance requirements, consumers should not be exposed to additional costs unless this is very transparent. For example, if using the customer's internet, regulators should aim to limit data consumed for the purpose of compliance.

Demonstrating Investment Need

33. Do you agree that the AER has sufficient guidance on what information DNSPs are expected to provide to justify specific flexible export-related proposals?

No. It remains unclear whether DNSPs will be given access to power quality data from smart meters and whether and how much they will be required to pay to obtain visibility of their low voltage (LV) networks.

34. Do DNSPs need more information than is currently available to demonstrate the investment need for flexible exports?

Yes. It would be very helpful for DNSPs to have access to power quality data from smart meters so that they have better visibility of their LV networks and can use that data to calculate flexible export limits.

Consumer Protections

35. *Beyond the issues being canvassed in the Review of Consumer Protections for Future Energy Services and the AEMC's review of technical standards, are there any other specific consumer protection issues we should explore in the context of the implementation of flexible export limits?*

We support the AER's conclusion that given that the Review of Consumer Protections for Future Energy Services is considering consumer protection requirements, including resulting from the implementation of flexible export limits, and the AEMC's review of CER technical standards in the NEM is also considering consumer protections, it is appropriate to await the outcomes of these projects.

Data Protection and Privacy

36. *Are more data protection and privacy requirements needed for the implementation of flexible export limits beyond those already available in the current framework and what is being considered in the ESB Data Strategy?*

The privacy framework should make it clear that DNSPs have access to data at the connection point and should not have access to data from devices behind the meter. Only the customer should have access to data from devices behind the meter, unless the customer consents to providing the data to an authorised agent or service provider.

37. *What impact is there likely to be on metering service providers from the implementation of flexible export limits?*

There is an urgent need to develop a data access framework which provides DNSPs with power quality data and which enables customers, or their authorised agents, to access near real-time data from the smart meter. This data access framework should be developed as part of the AEMC review of the regulatory framework for metering services. Metering service providers should be required to provide data to customers and DNSPs according to the terms of the data access framework.

Consumer Understanding and Interest

38. *Should the Customer Insights Collaboration workstream be leveraged to improve consumer understanding of flexible export limits and/or for consideration of impacts upon customers and consumer sentiment?*

Yes.

39. *What do consumers need to know about flexible export limits at each step in the journey to properly understand and engage with them?*

Consumers need to know what's in it for them.

They need an honest account of the benefits and the downsides.

They need an explanation of how flexible export limits relate to other mandatory requirements, such as the need for remote disconnect / reconnect capability and export charges.

They need to be reassured regarding the security and privacy of their personal data.

40. *What communication materials do consumers need to understand the opportunities offered by flexible export limits?*

The messenger is just as important as the message when it comes to communicating the opportunities offered by flexible export limits. Consumers have a very low level of trust in the main electricity market participants. Testimonials from customers who have had a positive experience with flexible export limits are likely to be more persuasive than anything produced by DNSPs or gentailers.

Integration with Export Pricing

41. How do stakeholders see flexible export limits and network tariffs interacting, for example, on the basic export level?

It is unclear at this stage how flexible export limits and network tariffs will interact. For example, will customers be able to choose a higher network tariff in exchange for a higher flexible export limit? Will export charges vary by location or will 'postage stamp' pricing apply?

A challenge with communicating to customers will be that export charges are like a 'user pays' approach to dealing with congestion on the network. However, flexible exports are designed to address congestion. It might seem unfair that customers that are not contributing to congestion are paying for it, whereas legacy customers who are contributing to congestion are not required to pay.

42. What types of tariff structures could apply to flexible export levels?

Export charges could vary by location or they could be uniform across the network.

Export charges could vary according to the maximum value of the flexible export limit, or there could be a uniform 'cents per kWh exported' charge regardless of the maximum value of the flexible export limit.

Customers could be given a range of export charges corresponding with different service levels. For example, customers could be given the option of paying a higher export charge linked to a higher service level for export services.

43. Do stakeholders have views on how export tariffs and flexible export limits could be implemented to complement each other?

If export tariffs and flexible export limits are both intended as tools to manage congestion on distribution networks, it is unclear what export tariffs will add over and above flexible export limits. The former uses pricing to influence behaviour whereas the latter mandates certain behaviours. Once the exporting behaviour is mandated, there is no need to use pricing to influence behaviour.

Flexible export limits will not be applied retrospectively, whereas there could be mandatory reassignment of customers to an export tariff. Export tariffs could, therefore, complement flexible export limits by being applied only to customers who have not 'opted in' to flexible export limits.

If the purpose of export tariffs is cost recovery rather than to influence behaviour, then the two policies could be complementary, especially if export tariffs are applied selectively to those causing the most network congestion i.e., customers who have not 'opted in' to flexible export limits.

Compliance and Enforcement of Technical Standards that Facilitate Flexible Export Limits

44. Are there any issues stakeholders consider will fall outside the AEMC's review of technical standards and consideration of associated roles and responsibilities the AER should be aware of?

Yes. The AEMC, ESB and AER reviews all outline concurrent or related work streams and they all fail to mention the AEMC review of the regulatory framework for metering services. Access to near real-time data from the smart meter is needed to enable coordination of devices behind the meter in conformance with dynamic export limits and, in future, dynamic operating envelopes. Without a framework for access to smart meter data, customers will be obliged to pay for multiple meters. This would be a complete waste of customers' money. It is the customer that ultimately pays for the smart meter. Therefore the customer, and the customer's authorised agents, should have access to its data.

It is perplexing that market bodies are seriously considering a regulatory framework whereby customers are required to pay for metering upgrades and their data would be available to metering providers, retailers and distribution networks, but not to the customer themselves.

45. Are there any issues that stakeholders consider will fall outside of CSIP-Aus that the AER should

consider?

Yes. We should not focus on CSIP-Aus to the exclusion of other open interoperability communication protocols. The emphasis should be on a policy of open interoperability. CSIP-Aus may be one means to that goal but it should not be regulated as the only means allowed. For example, in California Rule 21 there are multiple options available at the device level being DNP3, SunSpec Modbus and IEEE 2030.5 and at least one of these must be available on the device even if there is a CSIP cloud service. This would not stop the use of CSIP gateways or a CSIP cloud platform, but it would protect consumers from being locked into a single brand name equipment supplier.

What is important is that there is a minimum interoperability standard at the lowest level (the device level) and that this should provide interoperability with the utility server but not impeded device-to-device interoperability that customers will need for a HEMS and other functions.

46. Do stakeholders foresee issues with DNSPs monitoring device performance?

Provided we distinguish between 'flexible exports ready' and 'flexible exports capable', and allow DNSPs to determine the timing for the introduction of 'flexible exports ready' requirements in their own network, there should be no significant barriers to DNSPs monitoring device performance.

DNSPs with access to power quality data from smart meters are better able to monitor device performance even if they do not have a CSIP utility server and a CER registration procedure.

The NEM's regulatory framework for metering is highly problematic and is a significant barrier to monitoring device performance using smart meter data.

Efficient Communication of Flexible Export Limits at Scale

47. Do stakeholders have any views on which data exchange model may be the most efficient for the NEM?

Yes. Flexible export limits should apply at the site level, controlled by either a CSIP gateway or a CSIP cloud. All inverters should be capable of supporting an open interoperability communication protocol, and this should not be limited to CSIP-Aus.

When the DNSP is ready to implement a 'flexible export ready' mandate it would require:

- 'Flexible export capable' inverters,
- A CSIP-Aus software client and site control,
- An export monitoring device,
- An internet connection, and
- Registration with the DNSP's utility server, which would use the CSIP-Aus communication protocol.

It would be advisable to test the viability of this approach at scale (e.g. in South Australia) before embedding it in the NER or other regulations.